

**REMARKS**

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-22 are pending in the present application. Claims 1-13, 15, 16, 21, and 22 have been amended. Claims 1, 12, and 16 are independent claims.

The Examiner is respectfully requested to reconsider the outstanding rejections in view of the above amendments and the following remarks.

***Allowable Subject Matter***

It is gratefully acknowledged that the Examiner considers the subject matter of claims 6, 10, and 16-19 as being allowable if rewritten in independent form. Although not conceding the appropriateness of the Examiner's rejections, claim 16 has been rewritten in independent form and, thus, is in condition for allowance.

***Drawings***

It is gratefully acknowledged that the Examiner has accepted the Formal Drawings filed on January 26, 2004. Thus, no further action is believed to be necessary.

***Acknowledgment of Information Disclosure Statement***

The Examiner has acknowledged the Information Disclosure Statements filed on November 12, 2003 and April 11, 2005. Initialed copies of the PTO-1449s have been received from the Examiner. No further action is necessary at this time.

***Specification***

The specification has been amended to correct typographical errors. It is respectfully submitted that such amendments do not add any new matter to the present application, as will be readily apparent upon review of the specification.

***Claim Objections***

The Examiner objected to claim 5 because the “substantially equal to” is a relative term. Although Applicants believe that one of ordinary skill in the art, in view of the specification, would be reasonably apprised as to what constitutes “substantially equal to”  $\frac{1}{2}$  cycle of a phase, Applicants have amended claims 5 to recite that the predetermined period “corresponds to”  $\frac{1}{2}$  cycle. Thus, withdrawal of this objection is respectfully requested.

The Examiner objected to claim 21 because there is insufficient antecedent basis for “the control circuit.” Applicants have amended claim 21 to recite “the control device,” which has sufficient antecedent basis in claim 15. Thus, the Examiner is respectfully requested to withdraw this objection.

***Rejection Under 35 U.S.C. § 112***

Claims 7 and 11 stand rejected under 35 USC 112, 2<sup>nd</sup> Paragraph, as being indefinite. Specifically, the Examiner asserts that the limitation of “switching-on one of the phases... at an arbitrary time, if the phase of the electrical load has not been triggered...within a predetermined time” is indefinite because it is unclear what happens if the condition is not met.

Applicants respectfully disagree with the Examiner’s rejection. Applicants submit that one of ordinary skill in the art would understand the above claim limitation as meaning if one of the phases of the electrical load has not been triggered within a predetermined time, the phase is switched on at an arbitrary time. While Applicants do not agree with the grounds of rejection, in an effort to expedite prosecution, Applicants have amended claims 7 and 11 to make the meaning of this limitation even clearer.

Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

***Rejection Under 35 U.S.C. § 102***

Claims 1, 12-15, and 21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Coston (U.S. Patent No. 4,713,744). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

MPEP § 2131 sets forth the following requirement for a proper rejection under § 102:

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. V. Union Oil Co. Of California*, 814 F2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claims.” *Richardson v. Suzuki Motor Co.*, 868 F2d 1226, 1236, 9 USQP2d 1913, 1920 (Fed. Cir. 1989).

It is respectfully submitted that Coston does not set forth each and every element as defined in the claims. Thus, the Examiner’s rejection based on § 102 has been obviated.

Independent claim 1 has been amended to recite triggering respective phases of the electrical load to switch on or off in such a manner that (1) each phase of the electrical load is triggered in accordance with a zero-crossing point for a corresponding phase of the power source, and (2) at least one phase of the electrical load is triggered in accordance with a zero-crossing toward a positive amplitude, while another of the phases is triggered in accordance with a zero-crossing toward a negative amplitude. Independent claim 12 has been amended to recite similar features.

It is respectfully submitted that Coston fails to teach or suggest the aforementioned claim features.

Coston teaches a frequency reduction circuit inserted between a three-phase voltage source and a three-phase motor. Coston’s frequency reduction circuit includes silicon controlled rectifiers (SCRs), which are fired in a sequence that produces a new wave form that is a fraction

of the original frequency of the input line voltage. To do this, the SCRs fire at points where the input line voltage crosses zero. However, in col. 8, lines 20-24, Coston states:

**Each positive going wave form provides a pulse on the respective lines Xa, Xb and Xc in FIG. 2, and these pulses act with the sequencing logic of FIG. 3 and the trigger circuit of FIG. 4 to turn on the SCRs of FIG. 1 in a controlled sequence.**

Since Coston teaches that the SCRs are fired only according to positive going waveforms, the corresponding phases of Coston's load (motor) are triggered only at zero-crossings toward a positive amplitude. This is illustrated in Figs. 5a-e of Coston. Particularly, each of the load phases of Figs. 5c-e, respectively, is shown to be triggered only at *positive going* zero-crossing points of its corresponding power source phase in Fig. 5a.

Accordingly, Applicants submit that there is no teaching or suggestion in Coston of also triggering a phase of the electrical load according to a zero-crossing toward a *negative amplitude*, as required by claims 1 and 12.

At least for the reasons set forth above, Applicants respectfully submit that independent claims 1 and 12 are allowable over Coston. Accordingly, claims 13-15 and 21 are allowable at least by virtue of their dependency on claims 1 and 12. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

#### ***Rejection Under 35 U.S.C. § 103***

Claims 2-5, 8, and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Coston in view of U.S. Patent No. 5, 144, 209 to Ingji et al. (hereafter "Ingji"). Applicants respectfully submit that Ingji fails to remedy the deficiencies of Coston. In particular, the Examiner relies on Ingji only for creating a digital square wave with rising and falling edges, which coincide with zero-crossing points. Since this does not remedy Coston's deficiencies, Applicants respectfully submit that claims 2-5, 8, and 9 are allowable at least by virtue of their dependency on claim 1.

***No Prosecution History Estoppel***

According to the above amendments, claim 16 is hereby presented in independent form. No prosecution history estoppel would apply to the interpretation of the limitations set forth in claim 16, in view of the fact that the same subject matter has been continuously presented in these claims since the original filing date of the present application.

***Conclusion***

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but to merely show the state of the art, no comment need be made with respect thereto.

In view of the above amendments and remarks, the Examiner is respectfully requested to reconsider the outstanding rejections and issue a Notice of Allowance in the present application.

However, should the Examiner believe that any outstanding matters remain in the present application, the Examiner is respectfully requested to contact Jason W. Rhodes (Reg. No. 47,305) at the telephone number of the undersigned to discuss the present application in an effort to expedite prosecution.

Application No. 10/658,044  
Reply to Office Action of April 7, 2006

Atty Docket No.:H0004151  
BSKB No. 2929-0210P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: August 7, 2006

Respectfully submitted,

*gjw*

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